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| 26703 | 7590 | 03/11/2005 | EXAMINER | |
| HARNESS, DICKEY & PIERCE P.L.C. 5445 CORPORATE DRIVE SUITE 400 TROY, MI 48098 | | | POKER, JENNIFER A | |
| | | | ART UNIT | PAPER NUMBER |
| | | | 2832 | |

DATE MAILED: 03/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/621,128

Applicant(s)

SUTARDJA, SEHAT

Examiner

Jennifer A. Poker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on prlm amd.4/28/04 (filing date-7/16/03).
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-72 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1- 3, 5-7, 16, 20-23, 25-27, 36, 40-43, 45-47, 56, and 60 is/are rejected.
- 7) ☒ Claim(s) 4,8-15,17-19,24,28-35,37-39,44,48-55,57-59 and 61-72 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 01/28/05, 11/18/04, 11/11/04
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

General Status

1. This is a first action on the merits of application filed July 16, 2003. Claims 1-72 are pending and are being examined.

Claim Objections

2. Claims 62 and 66 are objected to because of the following informalities: claim 62 is dependent on itself and claim 66 is also dependent on itself. Examiner understood that that claim 62 was to be dependent on claim 61 and claim 66 was to be dependent on claim 65. However, appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1, 3, 5-7, 20, 21, 23, 25-27, 40, 41, 43, 45-47, and 60 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent Number 6,686,823 to Arntz, et al.

Regarding claims 1 and 41, Arntz, et al, discloses an inductive device comprising :

- (1) a high permeability magnetic core (118) having a hollow center orifice (121) extending from one side to a second side (figures 1 and 3; abstract; column 4, lines 15-24; claim 1);

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(2) a primary conductor (102) having a longitudinal axis, the primary conductor extending in the longitudinal direction and having a first end and a second end (figures 1 and 3; abstract; claim 1); the primary conductor (102) passing through the hollow center orifice (121);

(3) an air gap (122) running along the longitudinal direction of the core from one end to a second end (figures 1).

Regarding claims 3 and 43, Arntz, et al, further illustrates in figures 1 and 3 that the slotted air gap (122) of the core would run parallel to the primary conductor (102).

Regarding claims 5, 6, 45, and 46, Arntz, et al, further illustrates in figure 1 that the primary conductor (102) has one side that passes through the orifice (121), along a first side of the core, which is opposite that of the air gap (122) in the core. The conductor (102) further has second side that passes through the orifice (121) along a second side of the core, which is adjacent to that of the gap (122).

Regarding claims 7 and 47, Arntz, et al, further illustrates in figure 1 that a secondary conductor (winding) (120) is located and passes through the orifice (121) along the first side of the core, which is opposite the air gap (122).

Regarding claims 20 and 60, Arntz, et al, further illustrates in figure 1 that the cross sectional shape of the core (118) is circular.

Regarding claims 21, 23, 25-27, and 40, the method steps are necessitated by the device as it is disclosed by Arntz, et al, in claims 1, 3, 5-7, 16, 20, 41, 43, 45-47, and 60.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2, 22, and 42, are rejected under 35 U.S.C. 103(a) as being obvious over U.S. Patent Number 6,686,823 to Arntz, et al.

Regarding claims 2 and 42, Arntz, et al, discloses the claimed invention except for the inductors implementation within a DC/DC converter.

It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate that claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ 2d 1647 (1987). Therefore, it would have been obvious to one of ordinary skill in the art to implement the inductive structure as disclosed by Arntz, et al, into another electrical device.

Regarding claim 22, the method step is necessitated by the device as it is disclosed by Arntz, et al, in claims 2 and 42.

7. Claims 16, 36, and 56 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Number 6,686,823 to Arntz, et al, in view of Applicant's Own Admissions.

Regarding claims 16 and 46, Arntz, et al, discloses the claimed invention except for the cross section of the core being square. Arntz, et al, discloses a circular cross section.

Applicant admits freely in paragraph [0035] "skilled artisans will appreciate that other shapes may be employed". It is understood by the Examiner that the specified cross section has no affect on the functionality of the structure. Therefore, as admitted by applicant, it would have been an obvious matter of design choice to incorporate a different cross sectional shape (circular or square)

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for the core, since applicant has not disclosed that the specified square shape solves any stated problem or is for any particular purpose and it appears that the invention would perform equally well with the circular shaped cross section of Arntz, et al.

Regarding claim 36, the method step is necessitated by the device as it is disclosed by Arntz, et al, in claims 16 and 56.

Allowable Subject Matter

8. Claims 4, 8-15, 17-19, 24, 28-35, 37-39, 44, 48-55, 57-59, and 61-72 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Regarding claims 4, 14, 15, 17, 24, 34, 35, 37, 44, 54, 55, 57, 67, 69, and 71, no prior art of record or combination thereof teaches an inductor (in combination with the parent limitations) comprising an eddy current reducing material, which is disposed adjacent to at least one of an inner opening of the air gap in the cavity between the air gap and the conductor and an outer opening of the air gap, wherein the eddy current reducing material has a permeability that is lower than the magnetic core material.

Regarding claims 8, 9, 18, 19, 28, 29, 38, 39, 48, 49, 58, 59, 68, 70, and 72, no prior art of record or combination thereof teaches an inductor (in combination with the parent limitations) comprising a projection of the magnetic core which extends outwardly from the first side between the conductor and the second conductor.

Regarding claims 10, 30, and 50, no prior art of record or combination thereof teaches an inductor (in combination with the parent limitations) comprising a a second cavity arranged in the core; a center section of the core that is arranged between the cavity and the second cavity; a second

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conductor that passes through the second cavity adjacent to the first side, and a second air gap arranged in a third side that is opposite to the second side.

Regarding claims 11-13, 31-33, and 51-53, no prior art of record or combination thereof teaches an inductor (in combination with the parent limitations) comprising a second cavity in the core; a center "T"-shaped section arranged in the core between the cavity and the second cavity; and a second conductor that passes through the second cavity adjacent to the first side, wherein the first conductor is arranged adjacent to the first side.

Regarding claims 61-66, no prior art of record or combination thereof teaches an inductor (in combination with the parent limitations) wherein the core has a "C"-shaped cross section that defines an air gap and further includes an eddy current reducing material that is located across the gap and that has a permeability that is lower than the core.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent Number 4,527,032 to Young, et al; U.S. Patent Number 6,191,673 to Ogura, et al; U.S. Patent Number 6,356,179 to Yamada; and U.S. Patent Number 6,459,349 to Giday all disclose inductive devices comprising a magnetic core surrounding an internal conductor, wherein the magnetic core includes an air gap.

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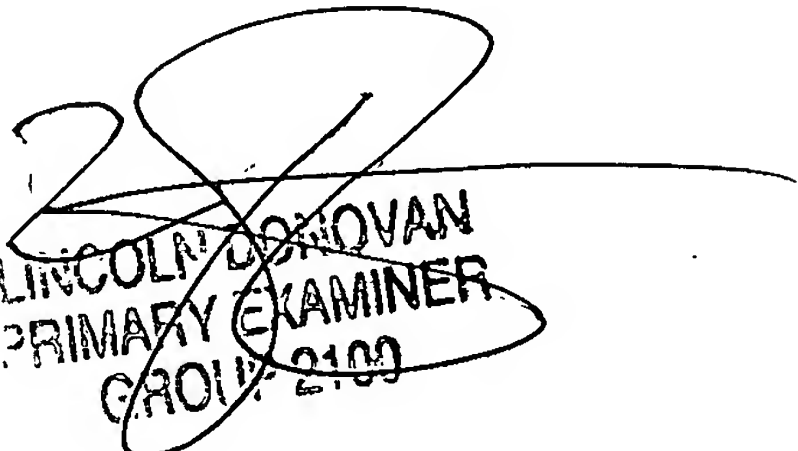
Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer A. Poker whose telephone number is 571-272-1997. The examiner can normally be reached on 4:30-3:00 Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin G. Enad can be reached on 571-272-1990. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jap
March 3, 2005


LINCOLN DONOVAN
PRIMARY EXAMINER
GROUP 2100